



WILDLIFE MANAGEMENT

AND RESEARCH NOTES

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	TITLE: 2007 Deer Hunter Survey	

ABSTRACT:

A questionnaire was mailed to a stratified random sample of 18,946 licensed Indiana deer hunters following the 2007 hunting season. The intent of this study was to examine the distribution of hunting pressure across the state, hunter success rates in all segments of the hunting season, and hunter use of these various season segments. The adjusted response rate of 31% continues the trend of decreasing response rate and is considerably lower than in previous surveys. During 2007, there were an estimated 191,892 licensed deer hunters and 228,721 deer hunters who actually hunted deer, including landowners and military personnel. The largest percentage of survey respondents hunted in the firearms segment (86.77%). Approximately 89% of the survey respondents hunted with a firearm, while 46% used archery equipment. Approximately 12,000 hunters utilized the new rifles, the first year they were allowed to be used. The statewide total licensed hunter effort during the 2007 season was 3,052,957 hunter days, and the total overall hunter effort including landowner / military personnel was estimated at 3,580,862 hunter days. Statewide success rates by segment, calculated as the harvest/hunter, for the 2007 season were 0.31, 0.33, 0.52, 0.26, and 0.09 for the early urban, early archery, firearms, muzzleloader, and late archery segments, respectively. When calculated as the percentage of hunters who harvested at least 1 animal, success rates were 0.27, 0.26, 0.40, 0.22, and 0.08 for the above segments. Fifty-four percent (54%) of Indiana hunters failed to harvest a deer in 2007, while 29% harvested only 1 deer. When extrapolated statewide, 25,291 hunters produced roughly 212,444 hunting efforts for deer on FWA's in 2007. The average hunter effort, satisfaction, and the success rates on private land were significantly higher than on public lands. On private land, resident respondents harvested 0.96 deer per hunter, and averaged 1 deer per 34 acres of hunting ground, while nonresident respondents harvested 0.8 deer per hunter and averaged 1 deer per 43 acres of hunting ground. Overall, 63% of respondents gave a positive rating to deer management in Indiana compared with the 13% which gave a negative rating. Hunters in Jay and Adams County are most dissatisfied with the deer herd in their counties, while Ohio and White are most satisfied with their deer herds. Hemorrhagic Disease and fewer youths hunting rate as the highest concerning issues with hunters, while herd numbers growing too high and urban deer conflicts rank as the least concerning issues with hunters. Sixty-six percent (66%) of hunters did not attempt to gain access to additional private hunting ground during the past two years; of those that did, 68% were successful in obtaining additional hunting opportunities.



These management notes are issued periodically to provide a quick source of information on wildlife surveys and investigations, and various wildlife programs prior to more terminal reports. Any information provided is subject to further analysis and therefore is not for publication without permission.

OBJECTIVE

To determine the distribution of hunting pressure and the success rates for Indiana deer hunters.

PROCEDURES

Sampling

A stratified random sample of deer hunter names and addresses was obtained from Point of Sale information of resident and non-resident generic deer licenses and youth hunting licenses from the 2007 deer season. These licenses were collected from vendors by Division of Fish & Wildlife personnel. The number of hunters selected from each county was based on the number of deer hunting licenses sold in that county in 2005, which was the most current completed data set at the time of survey construction. A random sample of lifetime license holders was obtained from the State License Unit's master list. Resident and non-resident generic deer license holders, youth license holders, and lifetime license holders were sampled in proportion to their estimated occurrence in the total population of licensed Indiana deer hunters. A questionnaire was mailed to each of the 18,946 hunters in the sample in April, 2008. A follow-up mailing to non-respondents was made in August, 2008.

In 1998, the department conducted a non-response bias survey using the firm Responsive Management from Virginia. Non-respondents to the 1997 Deer Hunter Survey were called and asked the same questions as found in the mail survey. The survey results were used to assess response bias and to develop correction factors that could be applied to future mail surveys. Correction factors from the 1997 non-response bias phone survey were used in this survey where appropriate.

Survey respondents were accepted or rejected for inclusion in a specific analysis on an individual question by question basis based solely on whether they responded to the specific question.

License Holder Estimation

During 2007, licensed deer hunters in Indiana were composed of the following groups: residents and nonresidents who purchased 1 or more generic deer licenses, youth license holders who hunted deer, and lifetime license holders who hunted deer. The number of generic license holders was estimated by dividing the total number of generic licenses sold to resident and non-resident hunters in 2007 by the mean number of licenses purchased per respondent in each license group. The average number of licenses bought for resident hunters was reduced by a correction factor of 0.04 from the 1997 response bias survey. The number of youth and lifetime license holders who hunted deer during 2007 was estimated by multiplying the number of youth and lifetime license holders by the percentage of these license holders who indicated in the survey that they hunted deer. The percent of license holders who hunted deer in 2007 was decreased using correction factors from the 1997 survey in amounts of 0.18%, 1.68%, 1.61%, and 3.25% for resident, non-resident, youth, and lifetime license holders respectively. The total number of licensed deer hunters is found by the summation of the above estimates for each group.

The number of landowners, tenants, and military personnel who hunt deer but who are not required to buy a deer license is unknown. This quantity was estimated by dividing the registered harvest attributed to landowners and military personnel in 2007 by the overall success rate of all hunters in all segments of the season (number of deer killed/number of license buyers who hunted). The assumption is that the success of landowners and military personnel can be approximated by the success of the other hunters in the general population. It is likely that this assumption is violated. Experience, as well as check-station reports, indicated that landowners experienced slightly higher success than other hunters. However, there is presently no cost-efficient method of ascertaining the true population value.

Statewide Number of Hunters and Hunter Efforts by Season Segment

The number of licensed hunters participating in each segment of the 2007 Indiana deer season was estimated by multiplying the estimate of the total number of licensed hunters by the percentage of survey respondents who indicated that they hunted during a given segment. The percent of survey respondents participating in a segment was decreased by a correction factor of 0.73%, 0.91%, 1.02%, and 1.23% for early archery, firearms, muzzleloader,

and late archery segments respectively. The estimated number of landowners hunting deer was determined by dividing the registered harvest from landowners by a success rate determined as the season-wide harvest per hunter.

When examining the percent of hunter participation by license type in the various season segments, raw survey values were reduced by corrections from the 1997 survey of 3.25%, 0.18%, and 1.61% for lifetime, resident, and youth license holders.

The number of hunter efforts (total days hunted) expended during each season segment was estimated by multiplying the estimated number of hunters in each segment by the mean number of days hunted for each segment calculated from survey response.

Number of Hunters and Hunter Efforts by County and Season Segment

Survey participants were asked in which county and how many days they hunted during each season segment. The total number of hunters in a county was estimated by multiplying the total number of hunters participating in the season segment by the percentage of respondents indicating that they hunted most in that county. This is certainly a minimum estimate as hunters could have hunted in the given county, but not listed it as their primary hunting area. The number of hunter efforts was estimated by multiplying the percentage of efforts for that county in the survey by the estimated statewide effort for that segment.

Hunter Success Rates

Survey participants were asked how many deer, if any, they killed during each season segment. Hunter success rates are expressed in the following ways:

1. *Statewide in all Segments* (avg. harvest per hunter). This was calculated by first finding the average number of deer killed for each individual respondent and then taking the average of all individual values. The avg. harvest per hunter was also calculated by using the estimated number of all hunters in the state and the number of deer known to have been checked during the season.
2. *Statewide in all Segments* (avg. harvest per hunter effort). This was calculated by first finding the number of deer killed per effort for each individual respondent and then taking the average of all individual values.
3. *Statewide by Segment* (avg. harvest per hunter). This was calculated by dividing the overall segment harvest by the estimated number of hunters in that segment.
4. *Statewide by Segment* (avg. harvest per hunter effort). This was calculated by dividing the overall segment harvest by the estimated number of hunter-efforts in that segment.
5. *Statewide by Segment* (percentage of hunters who harvested 1 or more deer). This was calculated by dividing the number of respondents harvesting 1 or more deer by the total number of respondents in that segment.

Comparisons of success rates among hunters of the 5 different segments were conducted with an ANOVA followed by Tukey's post-hoc tests for pairwise comparisons with an alpha level of 0.05. When examining the relationships among the segments in respect to the proportion of hunters harvesting at least 1 deer, we used tests of two binomial proportions with an alpha level of 0.05 for all possible permutations of group pairings.

Hunter Effort on Public and Private Land

In an effort to estimate the hunter effort, hunter success rates, and satisfaction with the hunting experience on different lands, participants were asked to specify the number of days, the number of deer harvested, and satisfaction level for hunts on land owned by the government, Fish & Wildlife Areas, and land owned by private citizens (Appendix, Question 7). Statistical comparisons of days hunted, average harvest per hunter (success), and

satisfaction score among different groups were conducted using ANOVA and t-tests for all possible permutations of any pairwise comparisons. For valuation of the hunter experience, a score of 1.0 was considered very positive, a score of 3.0 was neutral, and a score of 5.0 was considered very negative.

General License Purchase Questions:

Regular Firearms License Purchase and Use of the Opening Weekend of Firearms Season.—Participants were asked which licenses they had purchased or owned (Appendix, Question 2).

General Deer Management Questions:

Urban Deer Zone Management.—In an attempt to assess segment use and success rates within the urban deer zones as well as in the urban deer segment, survey participants were asked to identify the numbers of permits bought and the number of deer harvested for 2007 (Appendix, Question 4).

Satisfaction with Indiana Deer Management.—Given the effort over the past 20 years to slightly reduce the statewide deer population, survey participants were asked to indicate their satisfaction with overall deer management in Indiana (Appendix, Question 12).

In examining relationships among license type, a Chi-square test was first used to establish the presence of a difference. Subsequent examinations were done using ANOVA and T-tests for pair wise comparisons involving non-residents since sample size was considerably smaller than other groups.

For valuation of the hunter satisfaction with deer management, a score of 1.0 was considered very positive, a score of 3.0 was neutral, and a score of 5.0 was considered very negative. Comparisons of satisfaction among various sub-populations were conducted using ANOVA with Tukey post hoc tests at an alpha level of 0.05.

RESULTS and DISCUSSION

Sampling

A total of 18,946 questionnaires were mailed following the 2007 hunting season with the following distribution: resident generic deer license holders (10,093), youth license holders (3,497), lifetime hunting and fishing license holders (4,641) and non-resident generic deer license holders (715). A total of 5,299 questionnaires were returned yielding a response rate of 31.3% after adjustment for 2,014 non-deliverable surveys.

The adjusted response rate of 31.3% continues the trend of decreasing response rate and is considerably lower than in previous surveys. The 2007 value represents a decrease in response rate of 13.9 percentage points from the 2004 survey, 16.5 percentage points from the 2002 survey, and 23.3 percentage points from the 2000 survey. Perhaps the most significant cause for the decline in response rate for this survey vs. those prior to 2002 is the cessation in 2002 of providing a raffle for respondents where the winner was awarded a lifetime comprehensive hunting license worth several hundred dollars. One potential solution is the inclusion of allowing respondents to submit their answers via a web-based survey. A question was asked on this survey if respondents would prefer this survey to be found on the web, and 69% said they would like the option of having this survey on the web, with no bias between license holders. Response rates for each of the license sub-groups were as follows: resident (52%), youth (8%), combined lifetime (34%), and non-resident (32%).

Number of Licensed Indiana Deer Hunters

Licensed deer hunters in Indiana were composed of the following groups: residents and nonresidents who purchased 1 or more generic deer licenses, youth license holders who hunted deer, and lifetime license holders who hunted deer. During 2007, 233,266 resident deer licenses were sold. The average number of licenses bought per resident hunter was 2.01 when adjusted using a correction factor from the 1997 survey. This value shows a decrease of 0.38 licenses per hunter from the 2004 survey. The percentage of resident license holders who hunted

in 2007 was 98.4%, which is a decrease of 1.4 percentage points from 2004. Thus, the estimated number of resident hunters purchasing generic deer licenses is 116,053 while the number who hunted in this group is estimated at 114,208 (Table 1).

Total non-resident license sales for 2007 (9,449) was up 118% from 4,322 in 2004. The average number of licenses bought per non-resident hunter was 1.16. The estimated number of non-resident licensed hunters is 8,146, while the number who hunted is estimated at 7,941 (Table 1).

Youth license sales totaled 34,992 in 2007, which is an increase of 8% from the 32,486 sold in 2004. Approximately 89.51% of the youth license-holders hunted deer in at least one season segment. The statewide estimate for the number of youth license holders who hunted deer in 2007 is 31,321, an increase of 219 from 2004 (Table 1).

Lifetime licenses sold through 2004 totaled 43,205. Approximately 88.9% of the lifetime license holder respondents hunted deer in at least one season segment, which is a decrease from the 95% who hunted deer in 2004. The estimated number of lifetime license holders hunting deer in 2007 is 38,422. The summation of the above licensed deer hunters yields an estimated statewide total of 202,396 licensed hunters with 191,892 hunters participating in the Indiana deer season for 2007 (Table 1).

The registered deer harvest attributed to landowners and military personnel was 20,035, which was 16.1% of the overall season harvest. This percentage is a slight increase from the value reported in 2004 where landowners accounted for approximately 15.7% of the harvest. The success statistic used to determine the estimated number of landowners hunting deer was 0.54 deer harvested per hunter. The number of landowners, tenants, and military personnel who hunt deer on their own land or are not required to buy a license was estimated as 36,829. Thus, the estimated total of all deer hunters for the 2007 season is 228,721 (Table 1), which closely resembles the 231,000 hunters determined by the US Fish and Wildlife Service in 2006.

Hunter Participation in Various Season Segments.

Survey participants were asked in which segments of the hunting season they participated and the number of days afield for each segment during 2007. The largest percentage of licensed hunters hunted in the firearms segment (85.93%). The early archery segment was listed as the second most popular segment (46.23%); followed by the muzzleloader (41.94%), late archery (20.97%), and Early Urban (4.38%) segments (Table 2). Participation in all segments was down from the 2004 survey, with the most drastic seen in early archery and muzzleloader, with 18.54 and 20.64 percentage points, respectively, though total efforts expended were higher in 2007. Corresponding values for all hunters (including landowners) is found in Table 3.

Approximately 60% of the survey respondents hunted with multiple equipment types. Hunters using only a single equipment type constituted over 41% of all respondents. Among single equipment users, shotgun-only was the most popular followed by muzzleloader-only and archery-only with values of 25.97%, 7.28%, and 6.08% respectively (Table 4). Nearly eighty-nine percent (88.78%) of respondents used a shotgun, handgun, muzzleloader, or rifle yielding a statewide estimate of 203,059 firearms hunters including landowners. Pistol cartridge rifles, first available for use in 2007, had an estimated 12,031 hunters use the equipment, or slightly over 5% of hunters. Hunter use of different equipment types in the 2007 Indiana deer season by each equipment type is shown in Table 4.

It is of value to determine the hunter behavior of the different sub-populations of constituents. Table 5 shows the participation in the various segments of the 2007 Indiana deer season tabulated by license type. Residents and Nonresidents had the highest proportion of hunting in any season at 98.41% and 97.47%, respectively. The highest use among for all license types was Firearms season. Lifetime license holders were more successful of harvesting at least one deer throughout the season compared to other license type holders.

Statewide Number of Hunters and Hunter Efforts by Season Segment

Survey participants were asked in which segments they participated and the number of days they hunted in each of the season segments during 2007. The firearms segment had the largest number of participants among licensed hunters (166,505) followed by the early archery (89,921), muzzleloader (82,494), late archery (41,986),

and the early urban (8,405) segments (Table 2). Compared with the 2004 survey, the number of licensed participants in all segments increased, with the most notable increase occurring in the Firearms season (67%). Corresponding values for all segments that include the landowner / military personnel component are shown in Table 3.

The estimated statewide total licensed hunter effort during the 2007 season was 3,052,957 hunter days, an increase of 10% from 2004, and the total estimated overall hunter effort including landowner / military personnel was 3,580,862 hunter days. The greatest number of hunter efforts (1,209,438 for licensed hunters and 1,422,176 for all hunters) was expended during the early archery segment. This segment was followed by the firearms, muzzleloader, late archery, and early urban segments, respectively (Tables 2 and 3).

The average number of days per hunter in each segment showed a difference in days afield between Early Archery hunters compared to hunters in other segments. The early archery season had the largest average number of days per hunter (13.45) followed by firearms and muzzleloader seasons (Tables 2 and 3).

Trends in Hunters and Hunter Efforts

The estimated number of licensed hunters increased 55% from 123,408 in the 2004 survey to 191,892 in the 2007 survey. This ends the decline in hunter estimates dating back to the 2000 survey. Deer license sales have risen since 2005, when 225,107 deer licenses were sold, to 248,672 sold in 2006 and 242,715 sold in 2007. This goes against the trend that has been reported nationally of fewer participants involved in the sport of hunting.

Despite the increase in license sales, hunter participation and time afield continues to diminish. Hunter use decreased in each segment, and though total hunter efforts are up by 3%, that number doesn't accurately reflect the drastic increase in the number of hunters hunting deer in Indiana. Total efforts increased in only the Early Archery and Firearms season, while efforts in the remaining seasons dropped off compared to the 2004 survey (Table 3).

Number of Hunters and Hunter Efforts by County and Season Segment

The counties with the largest hunter effort in days during the 2007 early archery segment were Steuben (35,429), Noble (34,765), Kosciusko (28,437), LaGrange (27,578), and LaPorte (23,942) (Table 6). During the 2007 Firearms segment, Noble (27,431), LaGrange (24,061), Steuben (23,590), Kosciusko (23,551) and Parke (22,885) counties had the greatest hunter effort (Table 7). The largest number of efforts during the muzzleloader segment was expended in Noble (12,637), Steuben (10,781), LaGrange (10,465), Harrison (9,754), and Kosciusko (9,399) counties (Table 8). Counties with the largest hunter efforts during the late archery segment were Kosciusko (6,640), Warrick (6,521), Dubois (5,924), Jennings (5,845), and Steuben (5,352) (Table 9).

Hunter Success Rates

When using the registered harvest by licensed hunters (104,392 deer) and the estimated total number of licensed hunters in the year (191,892), the success rate was 0.54 for 2007, compared with 0.85 for 2004, 0.60 for 2002, 0.57 for 2000, and 0.46 for 1997.

Statewide success rates by segment calculated as the harvest/hunter for the 2007 season were 0.31, 0.33, 0.52, 0.26, and 0.09 for the early urban, early archery, firearms, muzzleloader, and late archery segments respectively (Table 10). Harvest/hunter rates and hunters with >1 deer decreased for the Early Archery, Firearms, Muzzleloader, and Late Archery segments. Hunters in the firearms segment had the highest success rate for harvesting >1 deer (0.40), while Late Archery had the worst success rate (0.08). Little change, if any, occurred for the harvest/effort value when comparing the 2004 survey data with the 2007 data.

While across all segments of the season 54% of hunters harvested 0 deer, few hunters (3.2%) harvested 3 or more deer in 2007, which is lower (7.9%) than the 2004 value (Table 11). This shows that as bonus antlerless quotas become more liberalized, diminishing returns are seen as few hunters will actually harvest a high number of deer.

Hunter Effort and Satisfaction on Public and Private Land

Survey respondents were asked to provide information on their usage and satisfaction with public land that was not a Fish and Wildlife Area (FWA), FWAs, and private land. Of the respondents in the 2007 survey, 19% of the hunters reported using some public land. This measure is a 6 percentage point decrease from the 2004 survey, and a sharp decrease from the 53% reported in 2000. Eight percent (8%) reported hunting only on public land, which was similar to the value reported in 2004. Sixty-one percent (61%) of the respondents reported hunting only on private land, which is about the same as reported in 2004 (75%) and is much higher than the 47% reported in 2000.

Public Lands.—Hunters who hunted on public land that was not a FWA spent an average of 6.8 days hunting for deer and had a success rate of 0.35 deer/hunter in 2007. Both values represent an decrease from the 7.4 days per hunter and the success rate of 0.45 deer per hunter that was found in the 2004 survey, but are similar to the results found in the 2002 survey (6.3 days hunting and 0.37 deer/hunter). Fifty percent (50%) of these hunters reported a positive experience and 25% reported a negative hunting experience (Table 12), which was a drop from the 65% positive and 14% negative values reported in the 2004 survey.

Hunters on FWA's reported spending an average of 8.4 days afield and yielded a success rate of 0.27 deer/hunter. These values were slightly lower than the 9.2 days afield average and 0.34 deer per hunter success rate that was found in the 2004 survey. Again, hunters reported more positive experiences than negative ones (54% vs. 25%). Positive ratings decreased from 66% in 2004 but were the same as 2002, while negative ratings increased from 13% in 2004 but were the same as reported in 2002.

Private Lands.—The average hunter effort and the success rate on private land was significantly higher than on public lands, with an average of 14.9 days afield and 0.89 deer/hunter reported. The days afield statistic is lower than the value from the 2004 survey (17.1) and the success rate represents a slight decrease from those reported in 2004 (0.94 deer/hunter).

Hunter satisfaction was high for those hunting on private land, with 72% of hunters reporting positive experiences and 12% voicing a negative experience (Table 12), compared with 78% positive and 8% negative in the 2004 survey and 68% positive and 13% negative experiences reported in the 2002 survey. As would be expected due to lower hunter densities on private vs. public lands, hunter satisfaction was significantly higher on private land vs. public land with positive to negative satisfaction ratios of 5.9:1 for private land vs. 2.1:1 for the 2 categories of public land (Table 12).

Bonus Antlerless License Purchases and Harvest

Survey participants were asked if and how many bonus antlerless licenses they purchased and the number of deer, if any, they harvested during the season. Twenty-seven (27%) of respondents purchased at least 1 Bonus Antlerless license in 2004. The survey averages were 0.32 bonus antlerless licenses purchased per hunter and 0.35 deer harvested per license purchased. For Youth and Lifetime license holders who harvested deer under a bonus antlerless permit, only 0.38 deer were harvested per hunter. Fewer respondents purchased bonus antlerless licenses in 2007 compared to 2004 (49%), which likely attributes to the lower number of bonus antlerless licenses purchased per hunter compared to 2004 (0.64 bonus antlerless licenses purchased per hunter). The survey underestimates the actual data from 2007; there were 62,451 bonus antlerless licenses sold in 2007, and when combined with the licensed number of hunters (124,199), actual estimates say that 0.50 bonus antlerless licenses are purchased per hunter.

Hunter Satisfaction with Deer Management in Indiana

Survey participants were asked to indicate their satisfaction with overall deer management in Indiana. Over four times as many hunters were satisfied with current deer management than were dissatisfied (positive: negative ratio of 4.7:1), which is a slight improvement from the 2004 survey (Table 13). Overall, 63% of respondents gave a positive rating to deer management in Indiana compared with the 13% which gave a negative rating. All 4 license holder types had at least a 61% positive outlook on the state's deer management, with nonresidents showing the most positive ranking and the least dissatisfied ranking. Resident and Youth hunters were very similar in their

attitudes, while Lifetime license holders had a higher negative rating, though this was still under 17%. It is clear that the respondents of the 2007 survey are overall satisfied with deer management in Indiana.

Hunter Satisfaction with County Specific Deer Populations

In an effort to assess any change of hunter attitudes toward the trend in local deer populations in light of the attempts since 1990 to reduce the statewide deer population, participants were asked if they wanted the deer population in the county where they hunted most often to increase, decrease, or remain similar to present levels.

Respondents, as a whole, indicated a desire to see an increase in the deer population versus a decrease in the population by a ratio of 3.7:1 (48% vs. 13%).

Table 14 shows the opinions for hunters in all 92 counties, along with their dissatisfaction rank amongst all 92 counties using two separate scoring techniques. For purpose of consistency, only one scoring value will be discussed. The most dissatisfied hunters (those who wish most to increase the deer population) belong to Jay, Adams, Henry, Marion, and Blackford counties. These counties historically have smaller deer populations, poor habitat, or access issues. Hunters in Ohio, White, Vermillion, Warren, and Marshall counties responded as being the most satisfied (those wishing most to decrease or maintain current deer populations). These counties have either historically had high deer populations or are seeing an increase in the current deer populations. Aside from Ohio and White counties, hunters in the remaining 90 counties are interested in either increasing or maintaining the deer population at the current levels.

Survey Specific Questions

The survey specific questions for 2007 focused primarily on private land access and management, as well as hunter attitudes on current issues in deer management and the opportunity for future surveys to be filled out online.

Concerns of Hunters

Survey participants were asked to rate their feelings on 10 modern day issues to deer management. Those issues include Chronic Wasting Disease (CWD), Epizootic Hemorrhagic Disease (EHD), deer numbers falling too low, deer numbers rising too high, deer-vehicle collisions, canned or high fence hunting, trophy quality, leasing of land and outfitters, urban deer problems, and fewer youths hunting. Respondents showed that EHD was their top concern, followed by fewer youths hunting, and CWD (Table 15). It should be noted that in 2007, many parts of Indiana were struck with perhaps the worst outbreak of EHD it has seen in recent years, obviously contributing to the heightened level of hunters concern. Deer numbers rising too high, urban deer conflicts, and deer numbers falling too low were the three issues of least concern. Of special note, at least 20% of respondents reported they needed more knowledge or have no opinion on canned or high fence hunting, EHD, CWD, and urban deer conflicts. The IDNR should make concerted efforts to increasing education on these topics.

Private land access and management

Survey participants were asked a series of questions relating to their hunting experience on private lands. First, they were asked whether they had attempted to gain access to hunt a new location within the past 2 years from someone they previously did not know. Respondents were broken down into two groups: hunters who hunt public land and hunters who do not hunt public land, and within these two groups, a further breakdown can be assumed of those who are seeking additional hunting properties, and the success of their outcome. A majority of hunters (54%) do not hunt public land and did not ask for permission (Table 16). This group can be classified as content in their current hunting access or do not deem acquiring new land a priority. The next largest group at 18.6% of hunters is private land hunters who were successful at acquiring new ground. This group can be viewed as those who have access to private land, but are not satisfied with their current setup. Public land hunters who did not ask for permission to hunt new private land made up the third largest group at 10.6% of respondents. This group can be classified as being satisfied by the current management of the public lands in Indiana and are not looking to acquire more land, or are hesitant to ask for permission to hunt private land because they feel a rebuttal is imminent. Only one out of three hunters attempted to gain access (34%) during the past two years. Of those who attempted to gain access, 68% were successful in their attempts, with the following breakdown of ease: 14% said access was 'Very

Easy' to obtain, 24% said access was 'Somewhat Easy' to obtain, 18% said access was 'Difficult' to obtain, 12% said access was 'Very Difficult' to obtain, while 32% were unsuccessful in their attempts.

Survey participants were asked whether they paid for access to deer hunt during the past two years. There was no difference between license types for lifetime, resident, and youth license holders, with 11%, 9%, and 10% of respondents paying for some access during the past two years, respectively. Not surprisingly, nonresidents had a significantly higher rate, with 18% of all nonresident hunters paying for access to hunt (ANOVA, $p < 0.001$).

A comparison between nonresident respondents and resident respondents (lifetime, youth, and resident) was made concerning their ability to manage the deer herd on private land. Lands hunted by resident respondents were found to require significantly fewer acres to harvest a deer (34 acres/deer) vs. lands hunted by nonresident respondents (43 acres/deer) (ANOVA, $p < 0.05$; Figure 1). No statistical difference was seen regarding number of deer harvested on lands hunted by resident respondents (0.97 deer/hunter) and nonresident respondents (0.8 deer/hunter), though the trend shows that land hunted by resident respondents harvest slightly more deer/hunter than nonresident respondents, and results likely would be significant had nonresident respondent sample size been larger (ANOVA, $p > 0.05$). There are obvious reasons for the difference in harvest between residents and nonresidents (number of licenses purchased, days hunting, etc.), and it cannot be ascertained completely that information presented is an accurate representation due to the residency status of unnamed hunters. However, there is strong anecdotal evidence that shows that lands hunted by resident hunters sustain higher harvest levels than lands hunted by nonresident hunters.

Internet survey

A final question was asked as to whether participants would prefer this survey on the internet. Over 69% of respondents said they would like this survey available on the internet. Nonresidents (71.1%) and residents (70.4%) had slightly higher preference than lifetime (67.6%) and youth (66.7%) license holders, but there was no statistical difference between the 4 classes of license holders (ANOVA, $p > 0.05$).

CONCLUSION

This survey has shown that previous lapse in deer hunters in Indiana may be exaggerated, with more deer licenses purchased today than the previous 3 years. It is important to get a better understanding for the lifetime license holders, as many of their initial mailings were returned. An updated database that requires lifetime license holders to update their contact information will provide a better understanding for the hunters who are in the field.

Few hunters participate in the early urban deer season, which was implemented to help remove deer with a high probability of a negative encounter (auto collision, ornamental herbivory, etc) in areas which may typically not receive enough hunting pressure to control the herd. A further detailed evaluation of this program may need to occur to help better address these issues.

Muzzleloaders have become more widespread in terms of the number of individuals who are using them. This is likely attributed to greater flexibility of use amongst seasons (one muzzleloader can be used during the firearms season and the muzzleloader season), and further advances in the technology which improves the accuracy and range of the ammunition. Short/medium range rifles, whose introduction to the hunting season met some resistance, still have relatively few users, though it is to be expected that use will increase as time progresses.

With over 54% of licensed Indiana deer hunters not harvesting a deer, and 29% harvesting only one, the debate and discussion regarding the number of bonus antlerless permits is superfluous. Less than 3% of hunters will shoot 4 or more deer, where counties needing a decrease in their population have bonus antlerless quotas ranging from 4 to 8. While this limits hunter's restrictions to harvesting deer, it is unlikely that it has dramatic, long term influence on the dynamics of the county deer population. Other methods need to be evaluated to help reduce the number of hunters who are failing to harvest one deer, rather than increasing the maximum allotment that many hunters will never reach.

Though more hunters view their hunts on public ground positively rather than negatively, private land hunters remain the most pleased with deer management in Indiana. This is likely attributed to the smaller crowds, the familiarity with the land, and the quality or quantity of deer they currently are seeing on their property. Results

from this survey show, that when looking for private land to hunt, most hunters are successful if they put in their time and ask for permission. Less than 1/3 of hunters who asked for permission to hunt a new property within the past two years were denied access.

Results from this survey show that land hunted by nonresident respondents do not experience the same success rates as land hunted by resident respondents, likely for obvious reasons such as time spent scouting, time spent hunting, and cost of licenses. Other states have found it difficult to manage the deer herd in areas where heavy leasing occurs, and with a higher rate of leasing for nonresidents and reduced success on nonresident hunted lands, future management may need to focus on limiting restrictions for nonresident antlerless harvest. Increased opportunity for success of all Indiana hunters should be the focus of all future regulation changes.

Table 1. Proportion hunted, licenses sold per hunter, and estimated number of hunters from each group represented in the 2007 Indiana deer season.

	Lifetime	Youth	Nonresident	Resident	Landowner	Total
Respondents with a valid hunting license	1,470	833	239	2,757	n/a	5,299
Respondents hunting in at least one segment	1,355	759	237	2,718	n/a	5,069
Percentage who hunted	92.18	91.12	99.16	98.59	n/a	96.34
Percentage who hunted adjusted**	88.93	89.51	97.48	98.41		
Number of Lifetime Licenses*	43,205					
Number of licenses purchased in 2007		34,992	9,449	233,266	n/a	277,707
Avg. number of licenses bought per hunter**	n/a	n/a	1.16	2.01	n/a	
Number of hunters in this group	43,205	34,992	8,146	116,053		202,396
Number of hunters in this group afield	38,422	31,321	7,941	114,208	36,829	228,721
				w/out Landowners	191,892	

*Only contains Comprehensive and Comprehensive Hunting and Fishing

**Values adjusted by factors determined in the response bias testing conducted in the 1997 survey.

Table 2. Estimated number of licensed hunters afield (excluding landowners) and hunter efforts for each segment of the 2007 deer hunting season.

Segment	Hunter Use(%)*	# licensed hunters	Avg. days/hunter	Est. hunter efforts (days)
Early Urban	4.38	8,405	5.52	46,396
Early Archery	46.23	89,921	13.45	1,209,438
Firearms	85.93	166,505	6.49	1,080,618
Muzzleloader	41.94	82,494	5.53	456,192
Late Archery	20.97	41,986	6.2	260,313
Total				3,052,957

*Values (except Early Urban) adjusted by factors determined in the response bias testing conducted with the 1997 Deer Hunter Survey

Table 3. Estimated number of hunters afield, including landowners, and hunter efforts for each segment of the 2007 deer hunting season.

Segment	Hunter Use(%)*	# hunters	Avg. days/hunter	Est. hunter efforts (days)
Early Urban	4.38	10,018	5.52	55,299
Early Archery	46.23	105,738	13.45	1,422,176
Firearms	85.93	196,540	6.49	1,275,545
Muzzleloader	41.94	95,926	5.53	530,471
Late Archery	20.97	47,963	6.2	297,371
Total				3,580,862

*Values (except Early Urban) adjusted by factors determined in the response bias testing conducted with the 1997 Deer Hunter Survey

Table 4. Hunter use (including landowners) of different equipment types in the 2007 Indiana deer season.

Equipment Type	Use (%)	Total # of all hunters	Single equipment users (%)*	Total # of all single equipment users
Archery	46.27	105,829	6.08	13,906
Shotgun	68.03	155,599	25.97	59,399
Muzzleloader	47.54	108,733	7.28	16,651
Handgun	7.43	16,994	0.55	1,258
Crossbow	3.19	7,296	0.19	435
Rifle	5.26	12,031	1.4	3,202
Firearms**	88.78	203,059	35.2	80,510

*Percent of respondents marking only one weapon of choice hunted

**Firearms users were determined by the summation of respondents who used at least one of the weapon types that included shotgun, muzzleloader, handgun, and rifle

Table 5. Hunter participation in each segment of the 2007 Indiana deer season by license type and overall measure of success.

License Type	Hunted in Any Season	<u>Segments Hunted</u>					Harvested at least 1 deer
		Early Urban	Early Archery	Firearms	Muzzleloader	Late Archery	
Lifetime	88.93	4.63	63.88	87.21	64.9	28.03	63.76
Youth	89.51	6.36	35.65	85.59	34.57	16.69	43.61
Resident	98.41	3.88	42.4	88.36	36.82	21.52	44.73
Non-Resident	97.48	1.67	32.64	69.87	8.79	6.28	35.86

Table 6. Estimated number of deer license buyers hunting in each county and the estimated number of hunter efforts expended during the 2007 Early Archery Segment.

County Name	Est. Hunters	Est. Efforts	County Name	Est. Hunters	Est. Efforts
Adams	781	14,806	Lawrence	1,172	18,281
Allen	1,250	15,234	Madison	977	11,641
Bartholomew	664	5,078	Marion	195	2,187
Benton	78	1,562	Marshall	1,758	20,703
Blackford	117	1,641	Martin	977	9,844
Boone	352	5,234	Miami	781	10,820
Brown	1,562	14,648	Monroe	859	12,187
Carroll	742	9,961	Montgomery	430	5,657
Cass	664	7,500	Morgan	1,523	17,253
Clark	1,250	17,651	Newton	1,094	18,229
Clay	547	6,562	Noble	2,227	34,765
Clinton	430	5,820	Ohio	547	6,484
Crawford	430	4,453	Orange	1,133	13,828
Daviess	898	11,367	Owen	1,328	12,070
Dearborn	1,562	20,117	Parke	1,562	16,172
Decatur	547	7,851	Perry	1,133	10,195
DeKalb	1,680	22,773	Pike	937	15,075
Delaware	742	11,719	Porter	1,602	18,113
Dubois	1,445	19,180	Posey	977	13,711
Elkhart	1,406	20,273	Pulaski	664	5,703
Fayette	508	3,984	Putnam	1,406	18,008
Floyd	586	5,156	Randolph	742	12,617
Fountain	859	7,578	Ripley	937	11,680
Franklin	1,484	15,820	Rush	469	8,437
Fulton	1,250	14,258	St. Joseph	1,172	17,695
Gibson	1,289	17,695	Scott	547	7,266
Grant	742	11,244	Shelby	430	3,242
Greene	1,641	19,336	Spencer	1,094	10,312
Hamilton	586	6,250	Starke	664	10,078
Hancock	391	4,375	Stueben	2,344	35,429
Harrison	1,445	16,355	Sullivan	1,094	14,140
Hendricks	820	11,562	Switzerland	1,875	21,133
Henry	977	12,207	Tippecanoe	820	10,195
Howard	547	6,172	Tipton	234	3,359
Huntington	1,172	16,367	Union	430	4,180
Jackson	1,133	11,875	Vanderburgh	508	5,508
Jasper	977	14,140	Vermillion	391	4,297
Jay	820	10,627	Vigo	1,016	13,555
Jefferson	1,016	9,453	Wabash	1,172	11,211
Jennings	1,172	12,773	Warren	508	6,289
Johnson	625	8,125	Warrick	1,562	21,133
Knox	742	6,016	Washington	1,055	7,609
Kosciusko	1,953	28,437	Wayne	820	11,523
LaGrange	2,305	27,578	Wells	508	9,141
Lake	820	10,781	White	508	7,187
LaPorte	1,719	23,942	Whitley	1,016	10,039
			Total*	89,921	1,123,720

*Total may differ due to rounding

Table 7. Estimated number of deer license buyers hunting in each county and the estimated number of hunter efforts expended during the 2007 Firearms Segment.

County Name	Est. Hunters	Est. Efforts	County Name	Est. Hunters	Est. Efforts
Adams	1,646	11,090	Lawrence	2,351	15,675
Allen	2,155	12,579	Madison	1,254	7,798
Bartholomew	1,293	7,994	Marion	118	509
Benton	353	2,077	Marshall	2,939	22,728
Blackford	470	3,527	Martin	1,763	12,305
Boone	745	5,133	Miami	2,312	14,930
Brown	2,821	14,460	Monroe	2,077	12,461
Carroll	1,293	7,798	Montgomery	823	5,800
Cass	1,763	8,856	Morgan	2,469	14,851
Clark	2,038	14,578	Newton	1,567	8,425
Clay	1,176	5,996	Noble	4,075	27,431
Clinton	745	3,919	Ohio	745	3,840
Crawford	1,724	10,894	Orange	2,469	14,303
Daviess	940	5,329	Owen	3,017	17,164
Dearborn	2,782	17,007	Parke	3,644	22,885
Decatur	1,019	7,720	Perry	3,605	22,611
DeKalb	3,174	19,319	Pike	2,273	15,714
Delaware	1,489	11,148	Porter	1,763	12,226
Dubois	2,821	19,006	Posey	1,881	13,559
Elkhart	2,038	11,521	Pulaski	2,155	13,990
Fayette	666	2,939	Putnam	2,978	20,053
Floyd	1,019	7,406	Randolph	901	6,270
Fountain	1,567	10,776	Ripley	1,685	10,541
Franklin	3,017	18,496	Rush	980	6,348
Fulton	2,038	12,814	St. Joseph	2,077	12,265
Gibson	2,312	17,752	Scott	705	4,232
Grant	1,372	9,091	Shelby	705	6,270
Greene	2,900	18,273	Spencer	1,959	12,109
Hamilton	588	2,743	Starke	1,489	10,071
Hancock	470	2,508	Stueben	3,409	23,590
Harrison	3,096	21,004	Sullivan	1,881	12,109
Hendricks	980	6,309	Switzerland	2,900	13,990
Henry	1,254	8,112	Tippecanoe	1,176	6,701
Howard	549	3,331	Tipton	196	823
Huntington	2,077	13,951	Union	901	4,898
Jackson	2,782	21,200	Vanderburgh	588	3,049
Jasper	1,920	10,149	Vermillion	1,176	8,190
Jay	1,254	9,366	Vigo	1,959	11,638
Jefferson	2,116	11,051	Wabash	2,273	14,499
Jennings	2,469	15,048	Warren	1,215	8,268
Johnson	1,215	6,819	Warrick	2,665	17,007
Knox	1,724	10,424	Washington	2,038	14,969
Kosciusko	3,527	23,551	Wayne	1,685	11,834
LaGrange	3,879	24,061	Wells	862	6,505
Lake	980	6,152	White	1,097	7,289
LaPorte	3,488	21,945	Whitley	1,959	11,090
			Total*	166,505	1,059,038

*Total may differ due to rounding

Table 8. Estimated number of deer license buyers hunting in each county and the estimated number of hunter efforts expended during the 2007 Muzzleloader Segment.

County Name	Est. Hunters	Est. Efforts	County Name	Est. Hunters	Est. Efforts
Adams	553	4,028	Lawrence	1,106	5,292
Allen	987	4,818	Madison	553	3,001
Bartholomew	592	2,922	Marion	0	0
Benton	79	553	Marshall	1,540	7,898
Blackford	276	1,106	Martin	869	4,423
Boone	355	2,093	Miami	1,264	6,753
Brown	1,145	5,094	Monroe	829	3,436
Carroll	632	2,764	Montgomery	434	2,136
Cass	632	3,396	Morgan	1,303	6,990
Clark	987	5,410	Newton	1,027	4,502
Clay	513	2,488	Noble	2,290	12,637
Clinton	355	1,817	Ohio	553	2,330
Crawford	829	4,462	Orange	1,145	5,687
Daviess	711	2,922	Owen	1,619	8,253
Dearborn	1,422	7,503	Parke	1,974	8,806
Decatur	474	3,594	Perry	1,224	8,608
DeKalb	1,698	9,004	Pike	1,185	8,846
Delaware	592	4,699	Porter	1,185	5,884
Dubois	1,185	6,437	Posey	829	4,818
Elkhart	1,027	4,028	Pulaski	1,145	5,529
Fayette	355	1,501	Putnam	1,422	7,858
Floyd	434	2,968	Randolph	750	4,818
Fountain	671	4,103	Ripley	790	4,265
Franklin	1,224	6,042	Rush	553	2,883
Fulton	750	4,541	St. Joseph	1,027	5,252
Gibson	987	5,923	Scott	316	2,290
Grant	750	4,699	Shelby	355	2,014
Greene	1,461	7,937	Spencer	711	3,554
Hamilton	395	1,501	Starke	908	6,674
Hancock	316	1,896	Stueben	2,132	10,781
Harrison	1,619	9,754	Sullivan	750	3,436
Hendricks	474	3,199	Switzerland	1,461	5,450
Henry	711	4,423	Tippecanoe	632	3,159
Howard	276	1,145	Tipton	118	671
Huntington	1,027	4,265	Union	395	2,053
Jackson	1,185	5,292	Vanderburgh	237	779
Jasper	908	3,633	Vermillion	474	3,396
Jay	829	5,015	Vigo	869	4,344
Jefferson	948	4,146	Wabash	1,145	5,647
Jennings	1,303	7,148	Warren	632	3,159
Johnson	395	2,527	Warrick	1,343	7,187
Knox	632	3,317	Washington	1,066	4,988
Kosciusko	2,132	9,399	Wayne	632	4,304
LaGrange	2,053	10,465	Wells	474	3,317
Lake	829	3,357	White	553	2,409
LaPorte	1,935	10,683	Whitley	1,027	5,726
			Total*	82,494	434,255

*Total may differ due to rounding

Table 9. Estimated number of deer license buyers hunting in each county and the estimated number of hunter efforts expended during the 2007 Late Archery Segment.

County Name	Est. Hunters	Est. Efforts	County Name	Est. Hunters	Est. Efforts
Adams	318	1,166	Lawrence	517	2,902
Allen	755	2,584	Madison	596	3,300
Bartholomew	318	1,829	Marion	80	80
Benton	80	80	Marshall	835	5,089
Blackford	119	199	Martin	278	1,948
Boone	278	2,227	Miami	517	1,511
Brown	596	4,016	Monroe	477	3,857
Carroll	239	954	Montgomery	119	239
Cass	398	3,022	Morgan	795	4,052
Clark	676	4,254	Newton	755	4,930
Clay	358	2,187	Noble	1,034	4,811
Clinton	239	1,590	Ohio	278	1,352
Crawford	199	1,074	Orange	517	2,545
Daviess	398	1,829	Owen	636	3,061
Dearborn	477	3,539	Parke	596	3,777
Decatur	318	2,664	Perry	437	1,352
DeKalb	755	5,845	Pike	278	1,630
Delaware	517	3,499	Porter	875	4,095
Dubois	755	5,924	Posey	398	2,743
Elkhart	358	2,227	Pulaski	318	1,511
Fayette	239	676	Putnam	557	2,346
Floyd	358	1,948	Randolph	199	1,034
Fountain	278	1,392	Ripley	318	1,272
Franklin	596	2,942	Rush	318	1,670
Fulton	517	3,181	St. Joseph	596	3,221
Gibson	676	4,692	Scott	199	1,670
Grant	477	2,743	Shelby	199	755
Greene	994	4,851	Spencer	477	2,942
Hamilton	278	1,511	Starke	557	3,340
Hancock	159	795	Stueben	994	5,352
Harrison	477	4,016	Sullivan	358	1,869
Hendricks	398	1,789	Switzerland	795	3,711
Henry	557	3,777	Tippecanoe	318	1,749
Howard	398	2,624	Tipton	199	1,392
Huntington	596	1,829	Union	358	1,471
Jackson	517	2,902	Vanderburgh	199	1,524
Jasper	557	2,863	Vermillion	159	437
Jay	358	2,624	Vigo	358	2,386
Jefferson	557	2,227	Wabash	477	2,569
Jennings	557	5,845	Warren	278	1,749
Johnson	119	1,471	Warrick	676	6,521
Knox	318	1,272	Washington	477	3,633
Kosciusko	716	6,640	Wayne	318	2,425
LaGrange	914	4,970	Wells	119	914
Lake	636	3,976	White	358	1,511
LaPorte	994	5,010	Whitley	398	994
			Total*	13,801,126	4,068,824

*Total may differ due to rounding

Table 10. Hunter success rates (%) for each segment of the 2007 Indiana deer season expressed as harvest/hunter, harvest/effort, and proportion of hunters harvesting at least 1 deer.

	Early Urban	Early Archery	Firearms	Muzzleloader	Late Archery
Harvest/hunter	30.9	32.6	52.5	26.4	9.2
Harvest/effort	4.8	2.8	8.7	5.3	1.7
Hunters with > 1 deer	27.5	25.8	40	22.4	7.7

Table 11. Statewide hunter success rates by segment and for the entire season expressed as the percentage of hunters harvesting deer in the 2007 Indiana deer season.

Deer Harvest per Hunter	Early Urban (%)	Early Archery (%)	Firearms (%)	Muzzleloader (%)	Late Archery (%)	2007 Deer Season
0	75.86	74.38	59.95	77.78	92.47	54.01
1	20.26	20.47	31.05	19.10	6.83	29.19
2	3.45	3.99	6.53	2.59	0.43	9.91
3		0.89	1.68	0.35		3.70
4		0.20	0.57	0.04		1.85
5			0.13	0.09		0.68
6			0.04			0.34
7						0.17
8+						0.15
Harvest >= 1	23.71	25.54	40.00	22.18	7.27	45.99
	n=232	n=2,482	n=4,592	n=2,277	n=1,156	n=5,299

Table 12. Hunter satisfaction (%) with their hunting experience on public, Fish and Wildlife Areas (FWA), and private lands in the 2007 Indiana deer season.

Satisfaction Level	Public Area Not		
	FWA	FWA	Private
Very Satisfied	15.8	11.1	27.9
Satisfied	34.6	42.7	43.8
Neither	24.0	20.0	15.2
Dissatisfied	16.2	16.0	7.8
Very Dissatisfied	8.4	9.0	4.4
No Opinion	0.9	1.2	1.0
Positive Experience	50.5	53.8	71.7
Negative Experience	24.6	25.1	12.1
Positive:Negative	2.1:1	2.1:1	5.9:1

Table 13. Hunter satisfaction with deer management in Indiana in 2007 based on license type.

	Very Satisfied	Satisfied	Neither	Unsatisfied	Very Unsatisfied	No Opinion	Positive rating	Negative rating	Positive: Negative
Lifetime	9.97	51.94	19.39	11.50	4.78	2.42	61.91	16.27	3.8: 1
Nonresident	20.00	49.36	17.45	5.53	2.13	5.53	69.36	7.66	9.1: 1
Resident	10.05	52.50	21.32	8.87	3.53	3.72	62.56	12.41	5.0: 1
Youth	13.28	48.60	19.61	9.01	3.05	6.46	61.88	12.06	5.1: 1
All	10.99	51.59	20.34	9.47	3.74	3.87	62.58	13.21	4.7: 1

Table 14. Desired trends of deer populations in each county, along with the associated dissatisfaction rank among all Indiana counties.

	Desired Trend (%)					Dissatisfaction Rank	
	Substantially Increase	Slightly Increase	No Change	Slightly Decrease	Substantially Decrease	Values of 1 to 3 ^a	Values of +2 to -2 ^b
Adams	31.11	46.67	17.78	4.44	0.00	2	2
Allen	7.94	31.75	38.10	19.05	3.17	80	79
Bartholomew	5.56	33.33	36.11	22.22	2.78	84	88
Benton	33.33	22.22	22.22	22.22	0.00	51	15
Blackford	0.00	63.64	36.36	0.00	0.00	5	21
Boone	12.50	33.33	33.33	20.83	0.00	68	66
Bown	23.75	33.75	33.75	7.50	1.25	19	10
Carroll	11.43	28.57	37.14	20.00	2.86	81	74
Cass	14.58	18.75	43.75	20.83	2.08	87	77
Clark	10.71	30.36	46.43	10.71	1.79	62	65
Clay	19.44	38.89	27.78	13.89	0.00	27	19
Clinton	10.00	25.00	45.00	20.00	0.00	83	76
Crawford	11.90	40.48	38.10	4.76	4.76	31	47
Daviess	12.90	32.26	41.94	9.68	3.23	59	60
Dearborn	8.22	26.03	43.84	20.55	1.37	85	86
Decatur	20.00	40.00	32.00	4.00	4.00	13	13
DeKalb	18.29	32.93	39.02	9.76	0.00	35	28
Delaware	20.51	38.46	30.77	10.26	0.00	20	12
Dubois	11.11	38.27	45.68	4.94	0.00	28	33
Elkhart	9.84	49.18	31.15	8.20	1.64	18	30
Fayette	31.82	18.18	27.27	18.18	4.55	66	36
Floyd	18.52	33.33	29.63	18.52	0.00	52	44
Fountain	4.35	30.43	50.00	10.87	4.35	76	82
Franklin	18.18	29.87	40.26	10.39	1.30	45	41
Fulton	7.02	28.07	47.37	14.04	3.51	79	80
Gibson	13.56	33.90	47.46	3.39	1.69	33	37
Grant	18.42	26.32	50.00	5.26	0.00	39	29
Greene	14.67	42.67	37.33	1.33	4.00	14	26
Hamilton	13.64	40.91	31.82	9.09	4.55	36	48
Hancock	13.33	46.67	26.67	6.67	6.67	23	39
Harrison	15.19	34.18	34.18	13.92	2.53	56	54
Hendricks	13.33	36.67	40.00	10.00	0.00	38	40
Henry	15.38	53.85	30.77	0.00	0.00	3	6
Howard	15.79	31.58	42.11	10.53	0.00	43	43
Huntington	11.86	35.59	38.98	11.86	1.69	49	56
Jackson	14.08	39.44	42.25	4.23	0.00	17	23
Jasper	12.00	30.00	36.00	22.00	0.00	73	70
Jay	31.43	45.71	20.00	2.86	0.00	1	1
Jefferson	14.04	40.35	31.58	10.53	3.51	37	45
Jennings	9.09	39.39	37.88	12.12	1.52	48	59
Johnson	22.58	35.48	35.48	3.23	3.23	15	11
Knox	12.77	31.91	53.19	2.13	0.00	32	34
Kosciusko	3.13	37.50	38.54	17.71	3.13	75	81
LaGrange	10.19	38.89	45.37	4.63	0.93	30	42

Lake	22.58	29.03	38.71	9.68	0.00	34	18
LaPorte	11.58	27.37	50.53	8.42	2.11	65	64
Lawrence	15.87	31.75	38.10	11.11	3.17	53	53
Madison	19.44	33.33	38.89	8.33	0.00	29	20
Marion	33.33	50.00	0.00	16.67	0.00	4	3
Marshall	6.90	22.99	47.13	16.09	6.90	88	89
Martin	19.57	36.96	36.96	4.35	2.17	16	14
Miami	14.81	40.74	35.19	9.26	0.00	24	27
Monroe	16.67	37.04	31.48	12.96	1.85	40	38
Montgomery	9.52	47.62	33.33	9.52	0.00	21	31
Morgan	17.81	46.58	23.29	8.22	4.11	12	17
Newton	10.42	41.67	25.00	18.75	4.17	61	67
Noble	9.01	35.14	45.05	9.01	1.80	50	62
Ohio	5.26	15.79	42.11	21.05	15.79	92	92
Orange	11.94	47.76	32.84	5.97	1.49	11	25
Owen	18.92	31.08	44.59	5.41	0.00	26	22
Parke	6.52	25.00	55.43	7.61	5.43	78	83
Perry	21.35	41.57	30.34	5.62	1.12	9	8
Pike	28.81	30.51	33.90	3.39	3.39	10	7
Porter	14.29	28.57	42.86	11.11	3.17	63	63
Posey	13.73	31.37	43.14	11.76	0.00	54	51
Pulaski	9.43	24.53	50.94	9.43	5.66	77	78
Putnam	18.75	38.75	32.50	10.00	0.00	22	16
Randolph	13.79	51.72	27.59	6.90	0.00	8	9
Ripley	14.29	28.57	46.94	10.20	0.00	57	52
Rush	11.54	23.08	42.31	19.23	3.85	86	85
St. Joseph	10.91	23.64	50.91	14.55	0.00	74	71
Scott	14.29	28.57	42.86	14.29	0.00	64	58
Shelby	19.05	28.57	42.86	9.52	0.00	41	32
Spencer	12.00	36.00	42.00	8.00	2.00	42	50
Starke	10.81	32.43	45.95	10.81	0.00	58	57
Stueben	7.61	34.78	41.30	11.96	4.35	67	73
Sullivan	16.67	33.33	35.19	12.96	1.85	46	49
Switzerland	11.90	25.00	47.62	11.90	3.57	72	72
Tippecanoe	5.56	30.56	44.44	16.67	2.78	82	84
Tipton	0.00	37.50	50.00	12.50	0.00	69	75
Union	27.27	31.82	40.91	0.00	0.00	7	5
Vanderburgh	20.00	15.00	65.00	0.00	0.00	47	35
Vermillion	9.68	22.58	35.48	25.81	6.45	90	90
Vigo	12.50	33.93	37.50	14.29	1.79	60	61
Wabash	12.90	29.03	40.32	14.52	3.23	71	68
Warren	12.12	18.18	45.45	24.24	0.00	89	87
Warrick	28.38	39.19	27.03	5.41	0.00	6	4
Washington	8.93	33.93	39.29	16.07	1.79	70	69
Wayne	18.37	32.65	42.86	6.12	0.00	25	24
Wells	11.11	40.74	29.63	18.52	0.00	55	55
White	3.13	18.75	53.13	18.75	6.25	91	91
Whitley	14.04	29.82	49.12	7.02	0.00	44	46

a ((Substantially Increase +Slightly Increase)*3)+(No Change*2)+(Substantially Decrease +Slightly Decrease)*1)

b (Substantially increase *2) +(Slightly increase *1) +(No Change *0) +(Slightly Decrease *(-1)) +(Substantially Decrease *(-2))

Table 15. Topics and concern levels of Indiana deer hunters.

	Extremely Concerned	Very Concerned	Don't Care	Not Concerned	No Opinion/Need More Knowledge	Concern: No Concern
EHD	21.4	31.7	5.9	9.9	31.2	5.4 :1
Fewer youths	27.0	36.0	14.7	12.6	9.7	5.0 :1
CWD	22.7	38.6	5.4	12.7	20.7	4.8 :1
Leasing of land	24.4	26.7	21.7	12.6	14.6	4.1 :1
Canned Hunting	22.9	15.4	15.4	10.4	35.9	3.7 :1
Trophy Quality	21.5	36.7	20.4	16.1	5.3	3.6 :1
Deer-Vehicle	17.6	34.2	18.2	22.1	7.9	2.3 :1
Deer #'s falling	19.1	35.9	6.7	31.7	6.6	1.7 :1
Urban deer	6.7	21.2	31.3	20.8	20.1	1.3 :1
Deer #'s rising	6.8	24.6	15.3	44.4	9.0	0.7 :1

Table 16. Category of Indiana hunter and attempts made at obtaining additional hunting land.

Public Land Hunters	Ask	Successful	5.6%
	Permission	Unsuccessful	3.7%
	Don't Ask		10.7%
Private Land Hunters	Ask	Successful	18.6%
	Permission	Unsuccessful	7.5%
	Don't Ask		54%

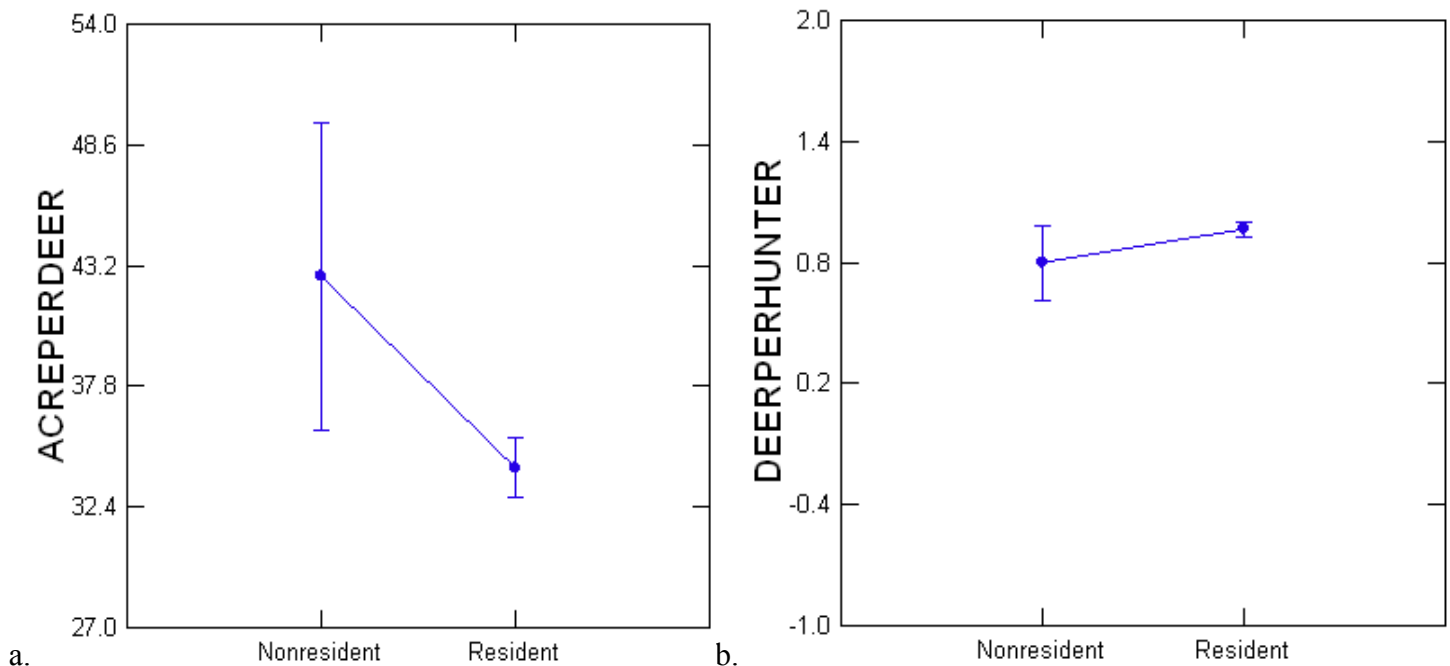


Figure 1. Comparison between nonresident and resident hunters in: a) Acres/deer harvested and b) Deer harvested/hunter.

Appendix 1. 2007 Deer Hunter Survey



DEER HUNTER SURVEY INITIAL NOTICE

State Form 49991 (R2/12-07)

1. What is your county of residence? _____

2. How many of the following types of deer permits did you purchase during the 2007 hunting season, and how many deer did you harvest on these permits? Youth (Y) and Lifetime (L) license holders enter Y or L for each permit type under Number Owned in lieu of a number.

Permit Type	Number Owned in 2007	Deer Harvested
Archery (Urban Deer Zone only)		
Archery (include military/refuge tags)		
Firearms (include military/refuge tags)		
Muzzleloader (include military/refuge tags)		
Bonus Antlerless		

3. Which equipment did you use to hunt deer during 2007?

(Check all that apply)

Archery _____ Shotgun _____ Muzzleloader _____
Handgun _____ Crossbow _____ Rifle _____

4. Please complete the following table about your hunting activities in Indiana during 2007.

Did you hunt during this season? Check yes or no for each season	Yes	No	County hunted most often	Total # of days hunted	Total # of deer killed
Urban Deer (Sep. 15 – Oct. 1)					
Early Archery (Oct. 1 – Dec. 2)					
Firearms (Nov. 17 - Dec. 2)					
Muzzleloader (Dec. 8 - Dec. 23)					
Late Archery (Dec. 8 - Jan. 6)					

5. During the past 5 years, what trends have you seen in the deer population where you hunt most often? (Check one for each question)

a. _____ more deer
_____ the same number of deer
_____ fewer deer
_____ don't know

b. _____ more large antlered deer
_____ same number of large antlered deer
_____ fewer large antlered deer
_____ don't know

6. Did you attempt to gain access to a new location of private land during the last 2 years from someone you did not previously know?

_____ Yes _____ No

If yes, how easy was it for you to gain access?

_____ Very easy to gain access _____ Somewhat easy to gain access
_____ Difficult to gain access _____ Very difficult to gain access
_____ Unsuccessful

7. Please complete the following table concerning where you hunted deer in the 2007 Indiana season. Comment on all that apply. For satisfaction ratings, use the following letter scale:

A = Very Satisfied B = Satisfied C = Neither satisfied nor dissatisfied
D = Unsatisfied E = Very Unsatisfied F = No Opinion

Type of Area Hunted	# of Days Hunted	# Deer Harvested	Satisfaction of your experience
Land owned by the government but not a Fish & Wildlife Area			
Fish & Wildlife Area			
Land not owned by the government (Private Land including timber & coal companies etc)			

8. If you primarily hunted private land, please answer the following questions:

a. About how large (acres) is the property that you most commonly hunt? _____

b. About how many individuals typically hunt this parcel? _____

c. About how many deer were harvested by all individuals during all hunting seasons of this property? _____

9. Please complete the following table indicating the level of concern you have regarding deer hunting in Indiana.

A. Extremely concerned B. Very Concerned C. Don't Care (Neutral)
D. Not Concerned E. No Opinion/Need More Knowledge

Chronic Wasting Disease (CWD)		Canned Hunting	
Epizootic Hemorrhagic Disease (EHD)		Trophy Quality	
Deer Numbers falling too low		Leasing of Land/Outfitters	
Deer Numbers growing/staying too high		Urban deer	
Deer Vehicle Collisions		Fewer youths hunting	

10. How would you like to see the DNR manage their deer herd over the next 10 years? (Check one)

_____ substantially increase the deer population
_____ slightly increase the deer population
_____ leave the deer population at current levels
_____ slightly decrease the deer population
_____ substantially decrease the deer population

11. Did you pay for access to hunt deer during the last 2 years? (Check one)

_____ Yes _____ No

12. How satisfied are you with deer management in the state of Indiana? (Check one)

_____ Very Satisfied _____ Satisfied _____ Neither satisfied nor dissatisfied
_____ Unsatisfied _____ Very Unsatisfied _____ No Opinion

13. Would you like this survey to be available on the internet?

_____ Yes _____ No

